



UNITED STATES PATENT AND TRADEMARK OFFICE

cel

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,379	12/12/2003	Jianrong Shen	FU020041-US	8528

21254 7590 07/07/2005

MCGINN & GIBB, PLLC
8321 OLD COURTHOUSE ROAD
SUITE 200
VIENNA, VA 22182-3817

EXAMINER

PRUCHNIC, STANLEY J

ART UNIT PAPER NUMBER

2859

DATE MAILED: 07/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/733,379

Applicant(s)

SHEN, JIANRONG

Examiner

Stanley J. Pruchnic, Jr.

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 13-16 is/are rejected.
- 7) ☒ Claim(s) 5-12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/10/04, 8/11/04 (2 sheets)</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Election/Restrictions

2. Applicant's election without traverse of Group I (Claims 1-13) in the reply filed on 08 April 2005 is acknowledged.
3. However, upon further consideration, the Examiner has withdrawn the restriction requirement. Non-elected claims 14-16 are hereby rejoined and fully examined for patentability. All pending Claims 1-16 have been considered.

Information Disclosure Statement

4. The references listed in the information disclosure statement (IDS) or PTO-1449 submitted by Applicant on 3/10/04 and 8/11/04 are acknowledged. The cited references have been considered as indicated by the examiner's initials next to each reference considered.

However the foreign patent(s) and/or document(s) cited by applicant are considered only to the extent they could be understood from the abstract and drawings, the Search Report and Applicant's explanation of relevance in the Specification.

Drawings

5. The drawings are objected to because in each of Figs. 5 and 7, the word "HEART" should be spelled --HEAT-- (i.e., in Steps 2, 24, 25). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should

Art Unit: 2859

include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-4 and 13-16 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5345397 A (Handel; Paul I. *et al.*, hereinafter HANDEL).

Regarding Claims 1, 13 and 14: HANDEL discloses a coating dry estimating system and method, and a recording medium recorded with a program for making a computer execute a method for estimating a dry state of coating on a coated coating target, comprising:

Regarding the method and recording medium/program: HANDEL discloses a coating dry estimating method of estimating a dry state ("cure", Col. 2, Lines 1-10 and 45-50) of coating on a coating target (*i.e.*, fibers are coated by a resin coating, such as epoxy; Col. 1, Lines 6-13), as claimed by Applicant in Claims 1 and 13, comprising:

a first step of calculating temperature data (measured temperature of distributed thermocouples 54, 55) indicating transition of a temperature distribution (Col. 5, Lines 34-47) of the coating target with time lapse (Col. 7, Lines 42-49; Step 116);

a second step of calculating an integrated value of an amount of heat ("ALPHA"; step 92, when in temperature range) applied to the coating on the basis of the temperature data; and

a third step (90, 92) of estimating the dry state ("ALPHA") of the coating on the basis of the integrated value of the amount of heat (Completion; Col. 7, Lines 9-20; heat transfer; Col. 8, Lines 1ff; "ALPHA" - "degree of cure" - Col. 6, Line 53).

Further regarding Claim 2: HANDEL discloses the estimating method including the further limitation wherein the third step contains a step of comparing the integrated value of the amount of heat applied to the coating with a threshold value (e.g., Step 102; Fig. 10, if ALPHA is not $\leq .99$, then GOTO Step 110 -- Cure is completed) for judging dry of the coating to estimate the dry state of the coating.

Regarding Claim 14: HANDEL discloses the system includes a storage device (memory 64) for storing a threshold value for judgment of dry of the coating; and a computer 42 (Col. 3, Lines 49-54) for calculating temperature data representing transition of a temperature distribution of the coating target with time lapse (e.g., time intervals of 30 seconds), calculating an integrated value of the amount of heat applied to the coating on the basis of the temperature data, and comparing the integrated value of the amount of heat applied to the coating with the threshold value to estimate the dry state of the coating (Completion; Col. 7, Lines 9-20; heat transfer; Col. 8, Lines 1ff; "ALPHA" - "degree of cure" - Col. 6, Line 53).

Further regarding Claims 3 and 15: HANDEL discloses the method and system includes the second step is a step of determining a time period (Figs. 2-3) for which the temperature of the coating target is within a predetermined temperature range (Temperature about 210 F) in the temperature data, and calculating the integrated value of the amount of heat applied to the coating within the time period ("ALPHA"; Col. 6, Line 24, resin heat required for optimum cure profile).

Further regarding Claims 4 and 16: HANDEL discloses the method and system includes the second step contains a step of correcting the integrated value (Col. 8, Lines 52-68) of the amount of heat on the basis of at least one of the film thickness of the coating, the kind of coating material (material properties of the resin; Col. 7, Line 55; A1, A2, A3) used for the coating and the content of solvent contained in the coating.

Allowable Subject Matter

8. Claims 5-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in a form PTO-892 and not mentioned above disclose related estimating methods and systems.

- US 6711531 B1 (Tanaka; Kazuo et al.) discloses a temperature control simulation method and apparatus for forming a temperature system simulation model on a computer, provide substantially the same response or simulation characteristics as a temperature change in an actual furnace, whereby a temperature control algorithm can be developed and the method or manner of manipulating the temperature control can be learned without using an actual furnace.
- US 6885964 B2 (Ogino; Takashi et al.) discloses a method and an apparatus for thermal analysis wherein a target region is divided by dividing the geometry of the target object of the thermal analysis into a finite number of finite elements or cells. The thermal analysis on the target region is conducted using the results of the division. A temperature distribution on the target object is obtained from the heat transfer coefficients by a temperature distribution calculating unit.

Art Unit: 2859

- US 5136497 A (Coe; Carlos J. et al.) discloses a process and apparatus for providing simulation, modeling and control which permits user feedback for purposes of implementing design and process optimization for composite or powder compact materials. Modeling is based upon constitutive equations which form the basis of modeling solutions derived from the micromechanical relationships inherent in the consolidated materials. The system is implemented in an FEM software platform such that a graphics based visualization in three dimensional form can be provided to the user.
- US 4589072 A (Arimatsu; Toshio) discloses an apparatus comprising at least one temperature detector disposed in the interior, the outer surface of the reaction system or in a vessel, a computer having an operation function for calculating the reaction amount in accordance with the temperature signal of the temperature detectors, and a comparison function for generating an output signal to terminate reaction when the reaction amount has exceeded the set amount, a timer for getting the operation and comparison performed at given intervals.
- US 6099162 A (Walsh; Thomas J.) discloses curing of a resin in a continuous manufacturing process wherein a temperature information distribution is monitored by a sensor which measures the surface thermal energy of the resin.
- US 4907533 A (Nelson; James S. et al.) discloses apparatus for heat treating a coating applied to an automobile body. The apparatus includes radiant heating elements for generating radiant heat. Controls separately control zones of the elements in response to characteristics of the body to uniformly heat treat the body.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stanley J. Pruchnic, Jr., whose telephone number is **(571) 272-2248**. The examiner can normally be reached on weekdays (Monday through Friday), the best hours being from 8:30 AM to 4:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez

Art Unit: 2859

(Art Unit 2859) can be reached at **(571) 272-2245**. The *Official FAX* number for Technology Center 2800 is (703) 872-9306 for all official communications.

Any inquiry of a general nature or relating to the status of this application or proceeding may be directed to the official USPTO website at www.uspto.gov or you may call the **USPTO Call Center** at **800-786-9199** or 703-308-4357. The Technology Center 2800 Customer Service FAX phone number is (703) 872-9317.

The cited U.S. patents and patent application publications are available for download via the Office's PAIR. As an alternate source, all U.S. patents and patent application publications are available on the USPTO web site, from the Office of Public Records and from commercial sources.

Private PAIR provides external customers Internet-based access to patent application status and history information as well as the ability to view the scanned images of each customer's own application file folder(s).

For inquiries relating to Patent e-business products and service applications, you may call the **Patent Electronic Business Center (EBC)** at **703-305-3028** or toll free at **866-217-9197** between the hours of **6 a.m. and midnight Monday through Friday EST**, or by e-mail at: ebc@uspto.gov. Additional information is available on the Patent EBC Web site at: <http://www.uspto.gov/ebc/index.html>.



Stanley J. Pruchnic, Jr.
7/2/05


GAIL VERBITSKY
PRIMARY EXAMINER